

ABSTRACT

An objective of the present invention is to provide methods for efficiently producing (S)-1-(3,4-dimethoxyphenyl)-2-propanol at a high optical purity. Another objective is to provide novel reductases which reduce 3,4-dimethoxyphenylacetone, using NADPH as a coenzyme, to produce (S)-1-(3,4-dimethoxyphenyl)-2-propanol with a high optical purity.

The inventors found that a 3,4-dimethoxyphenylacetone-reducing enzyme present in *Torulaspora delbrueckii* is a novel carbonyl reductase that reduces various carbonyls. This novel enzyme reduces 3,4-dimethoxyphenylacetone in a reduction reaction to produce (S)-1-(3,4-dimethoxyphenyl)-2-propanol with a high optical purity and at a high yield. Furthermore, the inventors isolated a DNA that encodes the present enzyme, and generated a recombinant bacterium which highly expresses the present enzyme. Thus, the present inventors established a simple and highly economical method of obtaining optically active alcohols with a high optical purity and at a high yield.